EPICS TANGO BRIDGE

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EPICS vs Tango Controls

EPICS Controls:

- Main unit - IOC.
- PV – piece of data associated with some device parameter.

TANGO Controls:

- Main unit are Device Servers.
- Each device server can have some attrbiutes and commands.
- Popular support for thousends of devices.

EPICS TANGO BRIDGE

- Tool to access Tango Classes via EPICS Channel Access.
- Server that provides mapping between Tango Attributes and Commands.
- Implemented using **pcaspy** (https://pcaspy.readthedocs.io/en/latest/).

Main advantages

- Tool to access Tango Classes via EPICS Channel Access.
- Support for scalar attributes (normal and polled).
- Support for commands.
- Support for spectrum (one dimensional array), and images (two dimensional array).

How to use it works?

- Create a PVDB the file that it provides a valid mapping between EPICS PV and Tango attributes and commands.
- Run IOC:

```
$ epics-tango-bridge ./path/to/pvdb.py
```

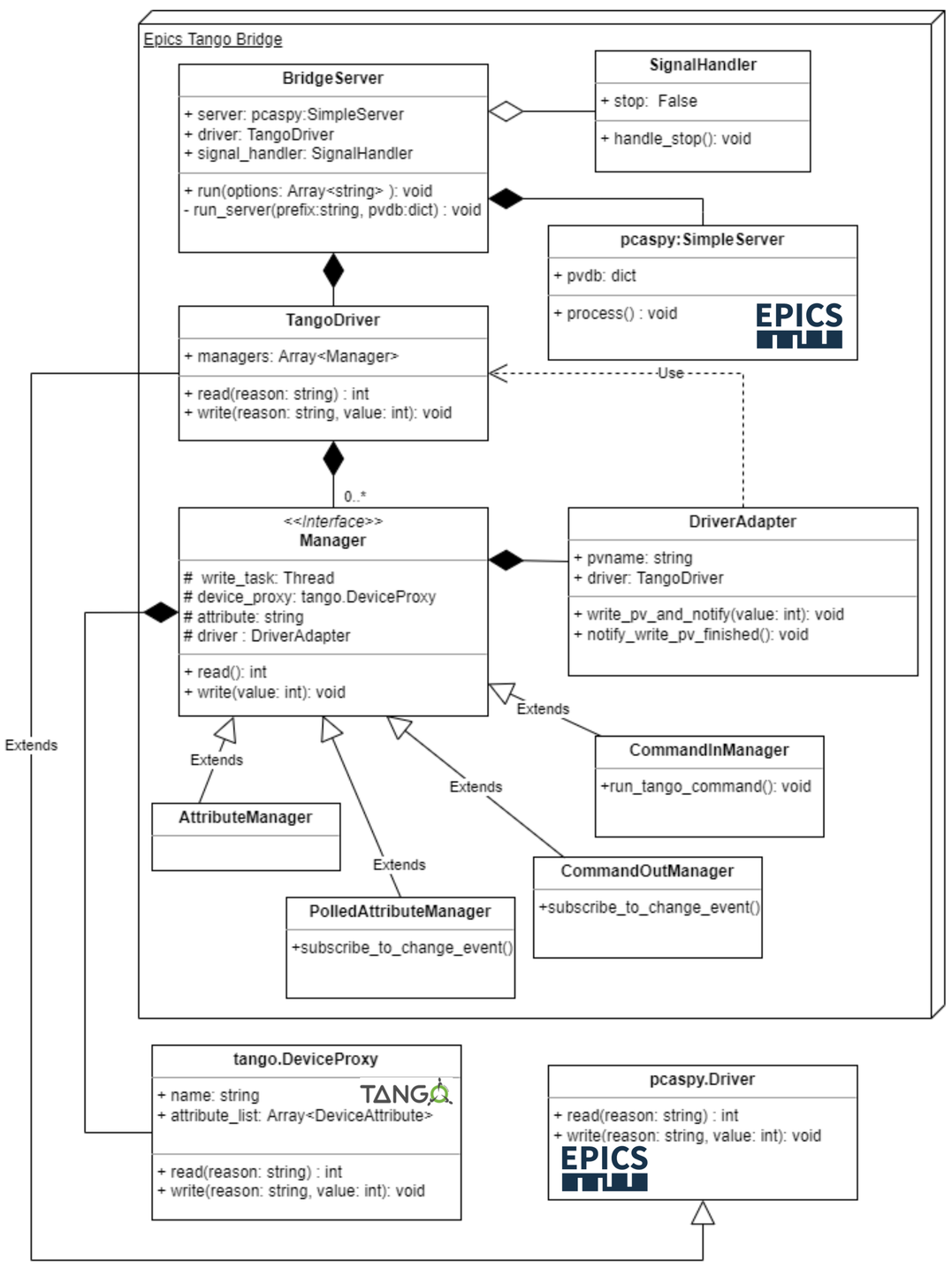
- Enjoy EPICS commands !

What is the performance of EPICS TANGO Bridge?

- Short reading time with EPICS Commands (average 0.2-0.7 ms).
- Relatively longer waiting time for writing using EPICS than TANGO.
- The type of attribute has no significant effect on the maximum size of the database.
- Spectrum attributes work well for 4000 elements

```
$ caget -c
„tango:test/epics_tango_bridge/1:atrr:DoubleScala
r”  -> Return 40
```

Architecture



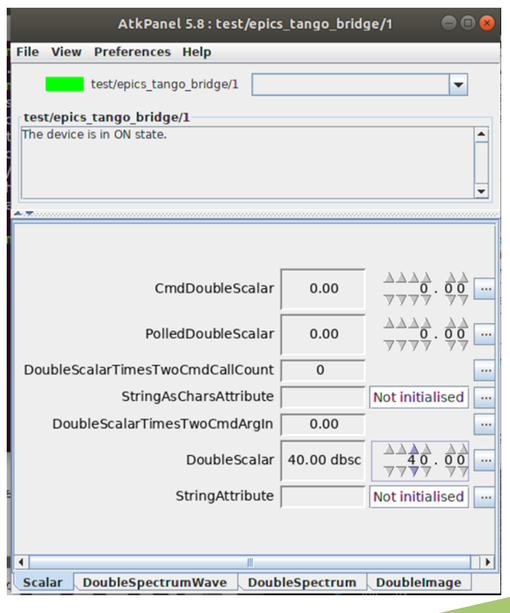
Example: Read Double Attribute

PVDB file EXAMPLE

```python
import PyTango as tango

device = "test/epics_tango_bridge/1"

pvdb = {
    f"{device}:attr:DoubleScalar": {
        'type': 'float',
        'scan': 1,
        'asyn': True,
        'high': 100000.0,
        'hihi': 200000.0,
    },
    f"{device}:attr:StringAttribute": {
        'type': 'string',
        'asyn': True,
    },
    f"{device}:attr:StringAsCharsAttribute": {
        'type': 'char',
        'count': 128,
        'asyn': True,
    },
    f"{device}:attr:State": {
        'type': 'enum',
        'enums': [name for _, name in sorted(
            [(k, v.name) for k, v in tango.DevState.values.items()])],
        'asyn': True,
    },
    f"{device}:attr:Status": {
        'type': 'string',w
        'asyn': True,
    },
    f"{device}:attr:DoubleSpectrum": {
        'type': 'float',
        'asyn': True,
    },
```



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